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Modern Egypt Still Looks to the Nile

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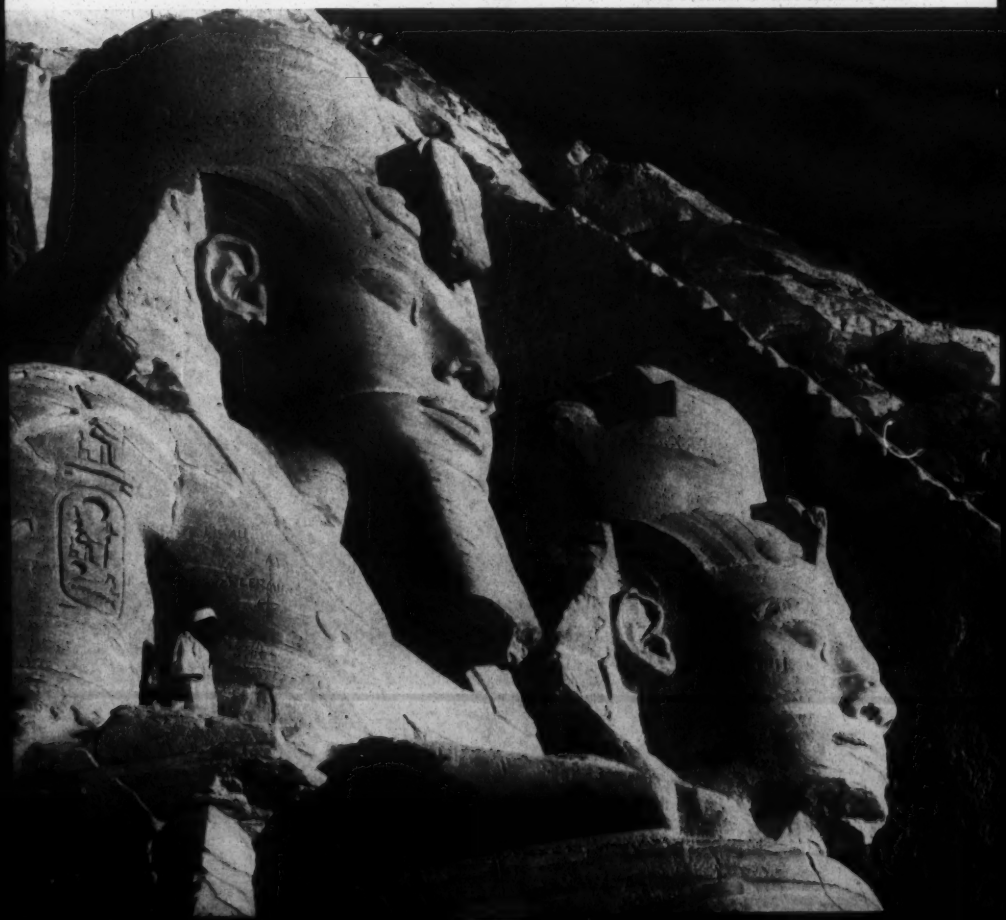

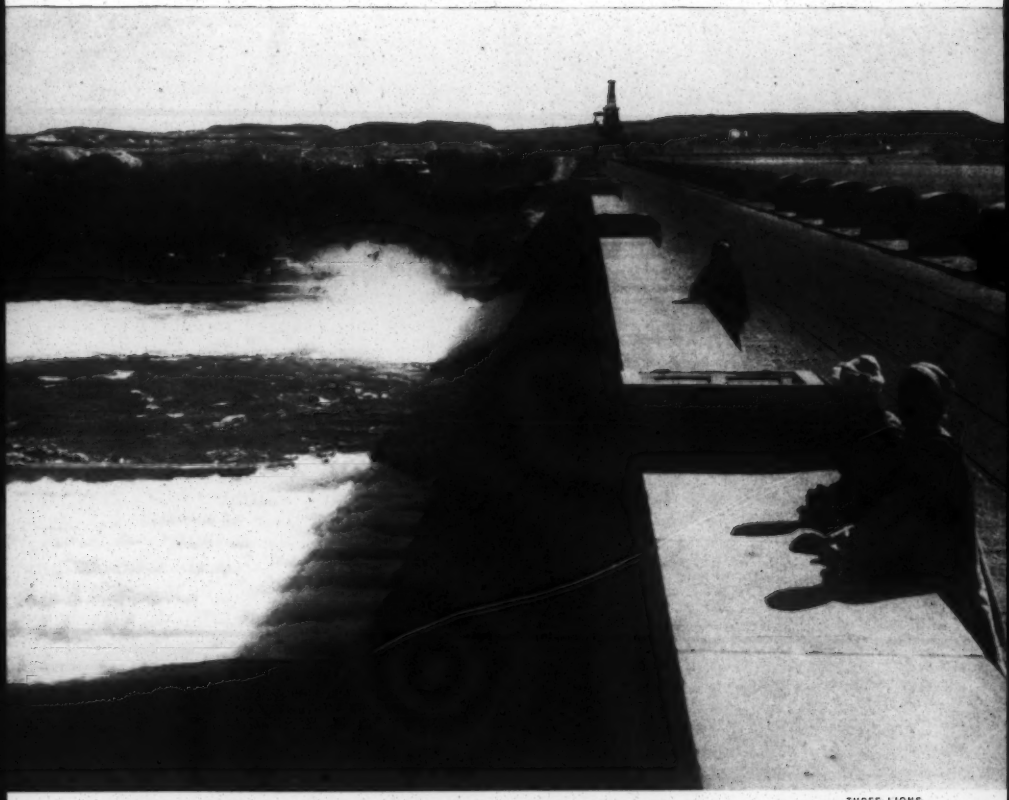

THREE LIONS

PRESENT ASWAN DAM SHACKLES NILE—Rearing 172 Feet above Its Foundations, It Has Saved Egypt the Misery of Drought. Projected High Dam, near by, Will Dwarf It

to the angles of the triangular Nile delta. Cairo, the capital, with more than 2,000,000 citizens, sprawls on the east bank where the river splits into its many mouths. Bazaars line narrow streets where Arabs shout their wares (page 257). Only blocks away, modern skyscrapers flank broad avenues. Donkey carts clatter past parked limousines. Mosques, topped by slim minarets, prod the skyline, while five miles away at Giza, pyramids raise somber bulks above the desert.

Alexandria, Egypt's chief port, bustles with the cotton trade. Its 10-mile waterfront sparkles with new apartment houses and office buildings. Nothing remains of that legendary lighthouse, one of the seven wonders of the ancient world, whose flaming beacon was said to have been focused on enemy ships, setting fire to them.

Port Said sprang to life when the Suez Canal was dug in the mid-nineteenth century. Until oil replaced coal on most vessels, it served as a busy, sooty coaling station at the northern end of the 100-mile ditch which links the Mediterranean and Red seas. On Port Said's harbor front stands a statue of Ferdinand de Lesseps, visionary French engineer who brought to reality the age-old dream of a canal across the isthmus.

Moving up the Nile from Cairo ("up" means south along this northward-flowing river), visitors see factories and industrial plants gradually give way to green farmland irrigated by the giver of life. Time seems

UMI

HAMILTON WRIGHT

TIMELESS VALLEY OF THE NILE—Pyramids Loom Beyond Green, River-Fed Fields While Wheat Farmers Use Plodding Oxen to Thresh, a Method Little Changed by Time

Modern Egypt Still Looks to the Nile

"Egypt is the Nile." The old saying rings as true today as when ancient multitudes, sweating on the river's bank, levered massive stone chunks into the shape of pyramids for their pharaohs. Slashing through parched desert, fed by scarcely a drop of rain in all Egypt's length, the blue-green Nile rolls steadily northward draining wet jungles and mountain streams of central Africa.

Early Egyptians marveled at its life-giving flow and anxiously eyed its annual rise. Too much meant flooded fields. Too little warned of drought to come. Egypt's economy depended on this green ribbon of fertility stretched across yellow wastes.

The fortunes of modern Egypt are still at the mercy of the Nile. Though the nation is far bigger than Texas, its 22,000,000 people are crowded along the valley in a total area little larger than Maryland. Outside this elongated shoestring of settlements and cities, beyond the last irrigation ditch, only remote oases dot the glaring sands.

Egypt's three largest cities—Cairo, Alexandria, Port Said—lie close

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water allows Egyptian farmers to raise three crops a year and removes much drought danger. When needed, Nile water thunders from Aswan Dam's 180 sluice gates.

Unless Egypt's plans go awry, this structure will be outmoded by a new and mighty project, Aswan High Dam, to be built near by. The United States, Great Britain, and the World Bank have agreed to help finance the estimated $1,300,000,000 cost of this immense dam, called man's biggest single project. Though less than half as high as the Colorado River's Hoover Dam, the Aswan edifice will stretch three miles. Lake Mead, impounded by Hoover Dam, now has the largest capacity of any man-made lake. But 400-mile-long Aswan reservoir will be three times as big, extending 150 miles into newly independent Sudan, wiping out the town of Wadi Halfa. The dam will require enough building materials to erect 17 Great Pyramids.

Crops from a little more than 6,000,000 Nile Valley acres now support Egypt's population. Water from the new High Dam will nibble at surrounding desert, adding about 2,000,000 more acres of irrigated land. The nation's hydroelectric power will be vastly increased. So completely will the Nile be controlled that not one drop reaching Aswan will be wasted.

Saad el Aali, the Aswan High Dam, will take 10 to 20 years to complete. Egyptians expect it to help forge a sturdy nation of the future.

National Geographic References: ***Map***—Northern Africa (paper 50¢, fabric $1)
Magazine—Nov., '55, "Fresh Treasures from Egypt's Ancient Sands" (school price 55¢); Dec., '54, "Safari from Congo to Cairo" (75¢); Jan., '52, "The Spotlight Swings to Suez" (75¢)
School Bulletins—Jan. 10, '55, "The Nile: Miracle Giver of Life"; April 25, '55, "Cradles of Civilization, #2: Egypt" (10¢ each)

GEORGE VALENTINE ENELL

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HAMILTON WRIGHT

EGYPT HOLDS LARGEST AFRICA CITY
This Cairo Policeman Directs Traffic Only Five Miles from Giza's Silent Pyramids

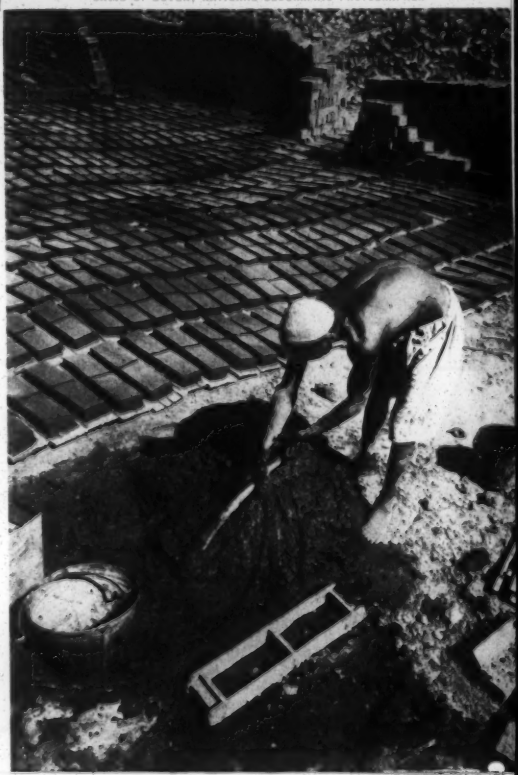
to slip backward as villages slide into sight, little changed from days of the pharaohs.

Here the valley echoes to squeals of the *shadoof*, ancient well sweep whose dripping buckets keep irrigation ditches filled. Or perhaps deeper grunts of the *sakieh* add bass notes to the Nile's music. This endless chain of clay jars, each lifting water from the river, is turned by shuffling cattle. If the ox stops, so does the noise. Sudden silence wakens the driver from his customary snooze. There is a shout, the thwack of a stick, and the song of ungreased cogs starts again.

Farther up, ruins at El Karnak and Luxor mark the site of what Homer called "Many gated Thebes," from which sprang many of ancient Egypt's dynasties. On islands near by, cut away from the outside world, villagers in mud huts preserve a pure Egyptian blood strain, almost unchanged for milleniums. Still farther south, at Aswan, by the First Cataract, modern Egypt returns abruptly to the scene. Aswan's quarries yielded stone for pyramids, obelisks. More lately they furnished material for Aswan's dam, finished in 1902.

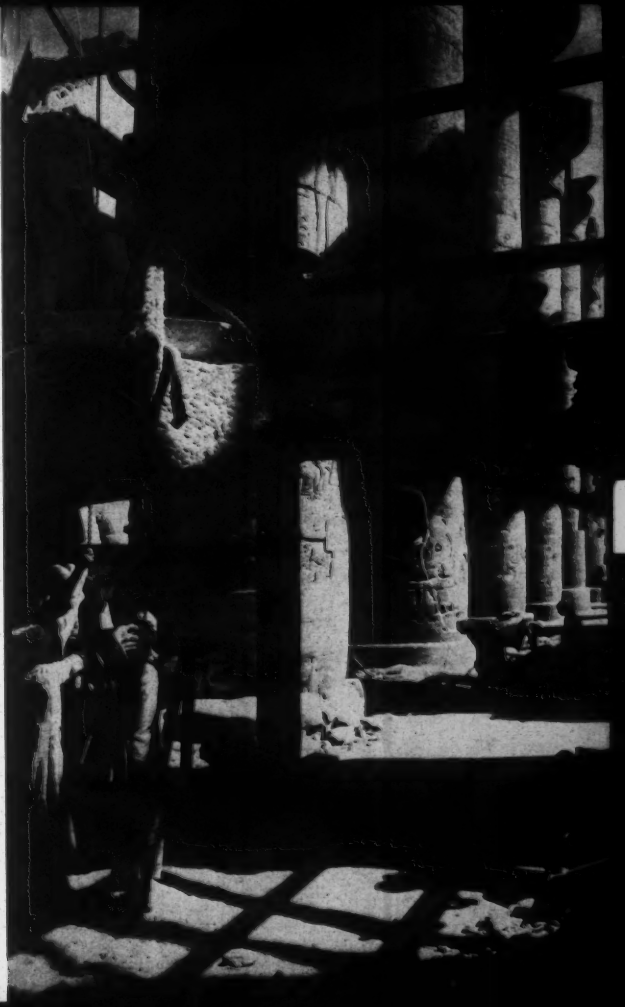
The barrier stretches a mile and a quarter across river, backing up the Nile for 200 miles. Its reservoir drowns a complete island with an ancient temple on it and covers settlements where black-skinned Nubians once lived. This stored

DAVID S. BOYER, NATIONAL GEOGRAPHIC PHOTOGRAPHER



CONJURING BRICKS FROM NILE MUD
His Ancient Ancestors Would Recognize This Brickmaker's Job and Do It as Well

Thebes was once earth's greatest city. Its temple to the god Amun at Karnak, shown at right undergoing reconstruction, still ranks as the largest temple ever built by man. It took 2,000 years to complete. Without its carved columns, the hypostyle hall seen here could hold all of Notre Dame Cathedral in Paris.



Deep in a rock-hewn chamber under a pyramid, Egyptologist Zakaria Ghoneim finds an alabaster sarcophagus, above. It is empty. Perhaps it was intended to hold the pharaoh's *ka*, or soul, while his mummy rests in another tomb.

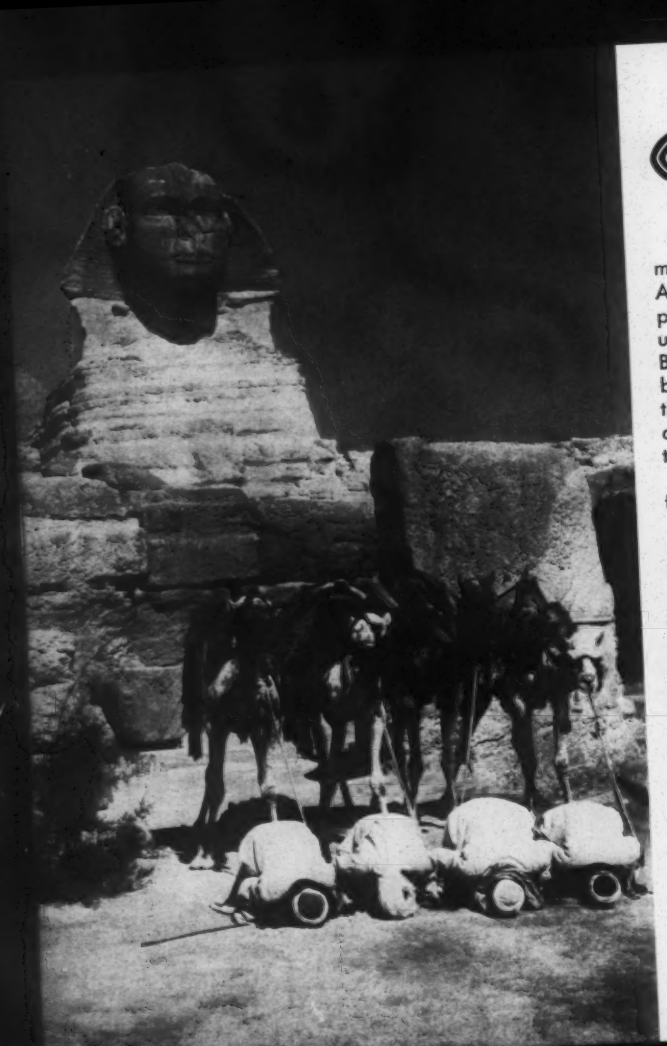
At right, tourists learn Egyptian history at the necropolis (city of the dead) at Thebes.

GAZE OF 40 CENTURIES

Photographs by David S. Boyer, National Geographic Staff

"Soldiers, think how forty centuries gaze at you from the summit of these pyramids!" Thus Napoleon exhorted his men in 1798, before the Battle of the Pyramids. All through Egypt, from Nile delta to above the First Cataract, past centuries contemplate the present. For nearly 5,000 years the Great Sphinx at Giza has looked down upon the tides of history. Completed during Egypt's Old Kingdom (Geographic School Bulletins, April 25, 1955), the Sphinx has seen ancient dynasties rise and fall, conquerors become conquered. Weather and vandalism have partially obliterated its expression, but the slight, almost contemptuous smile is still noticed by awed tourists, preoccupied archeologists, and humble Bedouins like those at the left, who have left their camels in order to pray towards Mecca.

The Sphinx's human head and lion's body were carved from living rock, looming 70 feet high. Counting the masonry forefeet, the entire figure stretches 240 feet.



More than 70 pyramids raise their crests along the Nile River and excavations continue around them. Step pyramids like this one at Saqqara, right, mark the earliest attempt by Egyptian builders to raise pyramidal tombs for their pharaohs. Ancient architects followed the step design with one using bent walls. Thus they learned to erect true pyramids like the 480-foot Great Pyramid at Giza, built by Khufu, or Cheops.

(LEFT) HAMILTON WRIGHT

nicalities concerning the orbits of asteroids to whether or not the moon is made of green cheese. Perhaps the most instructive moments of the summer came when visiting astronomers gathered with the Lowell staff for lunch. Sitting with them, the teen-ager kept his ears open.

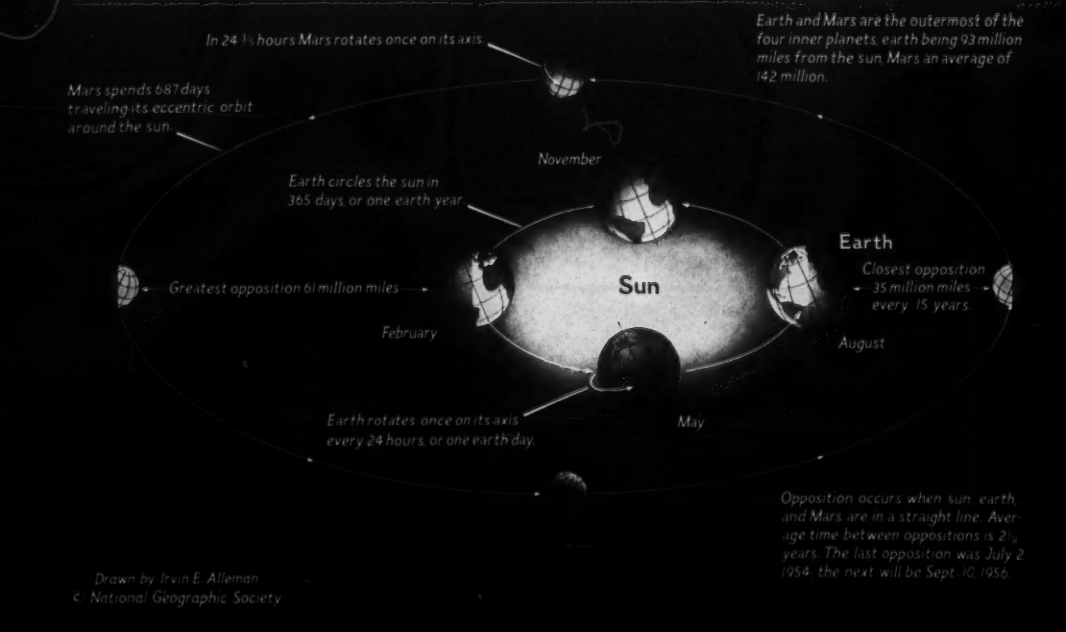
The staff of the observatory numbers about 15 people. A few student astronomers provide the youthful element. Staff members live either in town or in quarters on the hill, eat meals in Flagstaff restaurants, and often do southwestern sight-seeing on week ends. The Maryland boy took in Grand Canyon, other Arizona attractions.

Besides Dr. Wilson, the young helper was in constant contact with other top-rank American astronomers at the observatory. One of them, Dr. E. C. Slipher, led the 1954 National Geographic Society-Lowell expedition to Bloemfontein, South Africa, which intensively studied the planet Mars. Though scientists now strongly doubt that any form of human life exists on Mars, Dr. Slipher and others believe that a scant water supply, melting from the planet's polar ice caps, nourishes patches of green vegetation visible among reddish desert areas.

The orbit of Mars around the sun is eccentric—it is not always an equal distance from the sun. Every 15 years Mars, earth, and sun are in a straight line with Mars only some 35,000,000 miles from earth (to astronomers that's right next door). The next period of this close opposition will be in September, 1956. Again The Society will team with Lowell for an astronomical expedition to South Africa. Astronomers will be welded to their eyepieces, their camera shutters clicking.

Peyton? He'll be out at Flagstaff again.

"As long as school doesn't start too soon," he says, "I should be able to see Mars in opposition." That, to him, is worth waiting 16 years for.


In 24 ⅓ hours Mars rotates once on its axis
Earth and Mars are the outermost of the four inner planets, earth being 93 million miles from the sun, Mars an average of 142 million.
Mars spends 687 days traveling its eccentric orbit around the sun
November
Earth circles the sun in 365 days, or one earth year
Earth
Sun
Greatest opposition 61 million miles
Closest opposition 35 million miles every 15 years.
February
August
Earth rotates once on its axis every 24 hours, or one earth day.
May
Opposition occurs when sun, earth and Mars are in a straight line. Average time between oppositions is 2¼ years. The last opposition was July 2 1954, the next will be Sept. 10, 1956.
Drawn by Irvin E. Alleman
© National Geographic Society

EDWARDS PARK, NATIONAL GEOGRAPHIC STAFF

Vacationtime Astronomer

On most clear evenings, when he doesn't have too much homework, Peyton slips out to his Maryland backyard and spends a happy hour with an eye glued to his telescope. Astronomy has been his hobby since, at the age of 13, he followed up an advertisement in a scientific magazine and sent away for a three-inch mirror. With judicial use of saved-up allowances and birthday money, he built his first telescope around it.

During three years he graduated to a six-inch 'scope with a mirror he ground himself. Until last summer he thought he was getting to know quite a bit about astronomy. By summer's end he felt he didn't know anything. Reason: He spent his vacation as a helper at Lowell Observatory, Flagstaff, Arizona, working beside famous astronomers.

Most observatories, except Mount Palomar, take college astronomy students as apprentices during vacationtime. Peyton, still in school, was lucky enough to know Dr. Albert G. Wilson, Director of Lowell Observatory. Dr. Wilson had seen the boy's telescopes, watched him at work, scanned his photographs. An invitation to Flagstaff followed.

With a gulp of surprise, the 16-year-old accepted. By late June he was unpacking in a little room above Lowell Observatory's office. Around him stretched the plant established in 1894 by Percival Lowell, famed American astronomer, who was among the first to suggest the possibility of life on Mars. Perched on a tree-cloaked hill above Flagstaff, the observatory's four domes get a clear view of the heavens, benefiting from 7,500 feet of elevation in the crystal-clear air of the southwest.

His position was, as he puts it, "all-round lumper." He filed astronomical photographs, recorded readings on the photometers which measure light from stars under observation, guided visitors through observatories. Mostly his chances for viewing stars came while he was setting up and focusing telescopes for sight-seers. Saturn, "very good last summer," was the chief subject for these visitors, with the moon a close second choice.

Acting as guide tested the young astronomer's knowledge. He had to be ready with answers to innumerable questions ranging from tech-

NATIONAL GEOGRAPHIC PHOTOGRAPHER VOLKMAR WENTZEL

Charlemagne rebuilt it in the eighth century when he led his forces to conquer the Lombards of northern Italy. In 1772 a wider road was constructed for coaches to pass from Innsbruck, Austria, 25 miles down grade, to towns on the Italian side. Nearly a century later, in 1867, the first railroad went through.

Famous military commanders who have marched through Brenner Pass include Attila the Hun, whose armies plundered the Lombardy plains in 452, and Napoleon, some 1,300 years later. Toward the end of World War II units of the United States Seventh Army came down its rugged course to join Fifth Army troops who had fought their way up Italy.

On the south, the Pass starts above the ancient Italian city of Bolzano in the valley of the Isarco River. From Bolzano, 870 feet above sea level, highway and railway follow the river's curves past the picturesque towns of Chiusa, Bressanone, and Fortezza, set among snow-frosted peaks, to the village of Brennero. From the narrow saddle at the summit, the highway drops 2,628 feet to Innsbruck.

The Brenner Pass railroad crosses 60 bridges and puffs through a score of tunnels. Thanks to its comparatively low elevation—4,511 feet—the Pass is open the year round. Snow plows clear the road in winter.

When the double-lane addition to the road is completed, peacetime traffic can glide through the Pass with an ease and speed that would astound the conquering warriors of old who struggled along with their horses, their pack trains, and their foot soldiers. And one more traffic problem will have been solved, at least for a time.

National Geographic References: ***Map***—Western Europe (paper 50¢, fabric $1)

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NATIONAL GEOGRAPHIC PHOTOGRAPHER VOLKMAR WENTZEL

Widened Road Speeds Brenner Pass Traffic

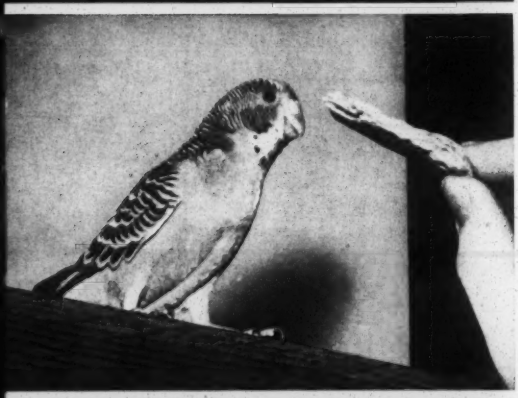
The traffic jam, bane of modern motorists, has come to Brenner Pass, Alpine portal whose roadway first was paved by ancient Romans nearly 20 centuries ago. Engineers are widening the old mountain highway.

This "gateway of war" through the mountain barrier between Austria and Italy made front-page headlines as a meeting place of Hitler and Mussolini during World War II. The ancient route became almost indispensable to the Axis war effort. Over it flowed Germany's coal and raw materials to the factories of Italy, and back came food, textiles, arms, and other products for the insatiable maw of the German war machine.

Later, Allied bombers broke up this deadly commerce. They were far from the first fighting forces to awake the echoes of the high peaks. In the heyday of the Roman Empire, barbarian hordes from Germanic countries poured through the Brenner to ravage lands to the south.

Caesar's Legions paved a road through the Pass over which they traveled on frequent raids against the German tribes. In a stretch of pavement still remaining (below), stones worn smooth by the wear and weather of the centuries show the marks of their chariot wheels and the scratches of their horses' hoofs.

When danger to Rome itself recalled the Legion outposts and the Empire began its decline, the road through the Brenner fell into disrepair.



Pete the Parakeet

With Illustrations by Ralph Gray, National Geographic Staff

Pete preened his pretty feathers and watched the sunshine striking leafy elms along the street outside.

Can it be that suddenly, cutting through generations of pet-shop breeding, the jungle called? Pete's mistress had left a window open. Without understanding his daring, Pete found himself wing-loose and fancy-free, flitting down 16th Street in Washington, D. C.

Pete might have ended up in the White House if he had kept going. Instead he flounced to the top of a parked car. A blast of air from a monstrous bus pushed him dizzily up again. A red-tiled roof cornice caught his eye. He smoothed feathers there, huddled himself into a little ball, and realized he was lost.

Dorothy and Ellen looked up from their work in the Indexing Division of the National Geographic Society and spotted the mournful figure. Their office is a penthouse atop The Society's headquarters building. Hundreds of times they had entered in the *Cumulative Index* the titles of articles about birds published in *The National Geographic Magazine*.

Ellen coaxed Pete inside. He hopped to the elbow of her desk light (top picture) and looked doubtfully around. A cracker partially won him over. Then a glimpse of *The National Geographic Magazine* convinced him he was among friends.

A meal of cracker crumbs in Ellen's hair (bottom picture) completed the conquest. Ellen called her pet Pete. The name stuck even after she learned "he" was female.

Newspaper ads failed to locate the banded bird's owner. Ellen took Pete to her sister Janet's farm near Winchester, Virginia, where he has the run of the house and is still exercising his parakeet's prerogative of getting into mischief. When last heard from, Pete had literally gotten into hot water by trying to alight on the suds in Janet's open washing machine, afterward damaging his dignity even further by flying into a hot skillet of scrambled eggs.